DOCUMENT RESUME

ED 451 926 PS 029 387

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TITLE	Gender Schematic Development within the Family Context.
PUB DATE	2001-04-00
NOTE	13p.; Poster presented at the Biennial Meeting of the Society for Research in Child Development (Minneapolis, MN, April 19-22, 2001).
PUB TYPE	Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Child Development; Family Environment; *Femininity; Gender Issues; *Masculinity; *Parent Influence; *Sex Differences; *Sex Role; Sex Stereotypes; Sexual Identity
IDENTIFIERS	Gender Schema Theory

ABSTRACT

Organizing the world into masculine and feminine categories is a process called "gender schematicity." High gender schematicity has been linked with children's inclination to self-select out of certain learning opportunities that they deem gender-inappropriate. This study examined gender schematicity among kindergartners and fourth-graders and their parents. Parents completed the Bem Sex Role Inventory and were classified as gender-typed or non-gender-typed. Children completed a toy-selection exercise that used response latencies to differentiate highly gender-schematic children from those with lower gender schematicity. Findings showed that boys were more gender-schematic than girls; no age effects were found. Boys with gender-typed fathers and non-gender-typed mothers were more schematic than girls with parents of the same gender-type classification, than girls with non-gender-typed mothers and gender-typed fathers, and than boys with two non-gender-typed parents. (Contains 18 references.) (EV)

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ED 451 926

Gender Schematic Development Within the Family Context

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Poster presented at the biennial meeting of the Society for Research in Child Development, Minneapolis, Minnesota, April 18-23, 2001.

Abstract

Gender schematicity was studied in 178 kindergarten and grade four children and their parents. Children were administered a computerized measure that used response latencies to differentiate highly gender schematic from children with lower gender schematicity. Parents were administered the Bem Sex Role Inventory, and their scores were classified into four categories of parental gender type combinations. A series of analyses of variance were used. Results showed that boys were more gender schematic than girls. No age effects were found. Simple comparisons indicated that boys with gender-typed fathers and non-gender-typed mothers were more schematic than girls with the same parent gender classification, than girls with non-gender-typed mothers and gender-typed fathers, and than boys with two non-gender-typed parents.

Introduction

Research has suggested that early experiences in the home are substantially different for boys and girls (Bradley & Gobbart, 1989; Bronstein, 1994; Gjerde, 1988; Lindsey, Mize, & Petitt, 1997), a claim that has not gone unchallenged (Belsky, 1979; Maccoby, 1998; Roopnarine, 1986; Stevenson, Leavitt, Thompson, & Roach, 1988). If parents offer children differential opportunities for learning based on their children's sex, children may learn that their worlds can be meaningfully organized into masculine and feminine categories, a process called gender schematicity. High gender schematicity has been linked with children's inclination to self-select out of certain learning opportunities deemed gender-inappropriate by children (Sadker & Sadker, 1994), a practice that may contribute to diminished educational achievement (US Department of Education, Health and Welfare, 1980) and the development of gender stereotyped skills (Martin, Fabes, Evans, & Wyman, 1999).

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Given the recognition of the importance of early years in children's long-term outcomes, it is prudent to investigate the relationship between early environments and gender schematic development in children.

Method

Participants

The sample studied included 178 children (90 girls and 88 boys) drawn from seven elementary schools in a central Canadian city, their mothers and their fathers. Participants included kindergarten (n=88, X age =5 years 5 months, SD=4.42) and grade four (n=90, X age =9 years four months, SD= 3.24 months) children. All children lived in mid to high SES, primarily English homes with both their biological parents.

Procedure

Data was collected from a random sample of children by using two instruments.

Bem Sex Role Inventory- Short Test

Mothers and fathers were requested to fill out the BSRI about themselves and about their partner. Paternal and maternal self and spousal scores were all highly correlated and were therefore aggregated through averaging the self and spousal score for each of the four scores: mother's masculinity, mother's femininity, father's masculinity, and father's femininity. This resulted in two scores for each parent: a combined masculinity score and a combined femininity score. Mothers and fathers were grouped into one of two classifications based on the comparison of their masculinity and femininity scores with the combined medians (masculinity median = 49.5, femininity median = 54.5), as suggested by Bem (1981) and used by Spence (Spence, Helmreich, & Stapp, 1975) and McHale et al. (1999). When compared to these medians, mothers' and fathers' aggregate scores were used as follows: (a) If both scores fell above or if both scores fell below the medians, the parent was termed non-gender-typed; (b) If either score fell above while the other fell below the median, the parent was termed gender-typed.

These delineations were further used to group mothers and fathers into the four quadrants of parental gender role dyads in which a child might be raised. If both parents were non-gender-typed, the couple was termed non-gender-typed/non-gender-typed (NN). If both were gender-typed, they were termed gender-typed/gender-typed (GG). If

the mother was non-gender-typed and the father was gender-typed, they were termed non-gender-typed/gender-typed (NG). Finally, if the mother was gender-typed and the father was non-gender-typed, the couple was termed gender-typed/non-gender-typed (GN).

Child Gender Schematicity Measure (CGSM)

The second instrument used was a computer program (CGSM) based on Carter and Levy's (1988) gender schematic processing measure. This test has been shown to distinguish highly gender schematic children from children with low gender schematicity by comparing their response latencies (Levy, 1989). Two separate scores are derived from this measure. The first score, termed the schema facilitated score, was based on the mean of the latency times children demonstrate in choosing preferred toys in the masculine-feminine pairs related to their average latencies for all types of pairs. The second score, the schema inhibited score, was derived from the mean of the latency times children demonstrate in choosing between two same gender toys related to their average latencies for all types of pairs. Internal reliability scores for facilitated and inhibited scores (Cronbach alpha= .73 and .78, respectively) exceed those of the manual measure. As expected and demonstrated in past research (Carter & Levy, 1988; Levy, 1989), a child's facilitated and inhibited scores are related both negatively and significantly (r =-.34, p<.01).

Results

Independent and Dependent Variables

The Child Gender Schematicity measure generated two dependent variables, namely the facilitated score and the inhibited score. Three independent variables were used in the analysis. The first two independent variables were the child's sex and grade. The third was the parental gender type classification, which was classified in four ways: non-gender-typed /non-gender-typed (NN), gender-typed/gender-typed (GG), non-gender-typed mother/gender-typed father (NG), gender-typed mother/non-gender-typed father (GN).

Analysis Plan

A 2 (child sex) X 2 (child grade) X 4 (joint parental gender type) multiple analysis of variance (MANOVA) was conducted using the facilitated and inhibited scores as the

dependent variables. Main effects and interactions were examined. An Alpha level of .05 was set for all analyses.

The main effect of child sex was statistically significant, F (2,164) = 3.76, p = .03. The main effect of parental gender type, F (3, 165) = .91, p = .44, and child grade, *F* (2, 164) = 2.50, *p* = .08, were not significant. There were no significant interaction effects (all F's .01-1.70, all p's > .17). The inhibited scores and facilitated scores were then looked at separately, as past research has demonstrated they are related to different components of gender. The analyses plan involved two 2 (child sex) X 2 (child grade) X 4 (joint parental gender type) analyses of variance (ANOVAs).

Separate ANOVA models were run for each of the types of child gender 'schematicity scores. Only one of the two models reached significance. The facilitated model was significant, F (5, 177) = 3.09, p = .01. See Table 1 for descriptive statistics.

Gender Schematicity and Children's Sex

The first hypothesis stated that boys would demonstrate higher gender schematicity than girls. It was supported. The main effect for child sex was significant, F (1, 177) = 10.19, p= .001. A follow-up t–test , t (176)=-3.18, p=.001, indicated that the facilitated score mean for boys (M= .21) was significantly higher than the facilitated score mean for girls (M= .12). Recall that a higher facilitated score is representative of higher gender schematicity.

Gender Schematicity and Children's Age

The second hypothesis stated that younger children would demonstrate higher levels of gender schematicity than older children. It was not supported, F (1, 177) = 3.02, p = .08.

Children's Gender Schematicity, Children's Sex, and Parental Gender Types

It was hypothesized that boys with gender-typed fathers and non-gender-typed mothers would have higher gender schematicity than girls with gender-typed fathers and non-gender-typed mothers, and than children with gender-typed mothers and non-gender-typed fathers. The main effect for ANOVA with two levels of child sex and four levels of parental gender type classification was significant, F (1, 177) = 2.38, p= .02. Planned comparisons were then conducted to test the hypotheses. Three planned

comparisons testing the a priori hypotheses were conducted. The planned comparisons yielded mixed results (see Figure 1). The first comparison showed that boys with non-gender-typed mothers and gender-typed fathers demonstrated statistically higher gender schematicity than girls with gender-typed mothers and non-gender-typed fathers, t (39)=-2.48, p=.02. The second comparison showed that boys with non-gender-typed mothers and gender-typed fathers demonstrated statistically higher schematicity than girls with non-gender-typed mothers and gender-typed fathers, t (40)= -2.80, p=.01. The third planned comparison was not significant; boys with non-gender-typed mothers and gender-typed fathers did not demonstrate significantly higher gender schematicity than boys with gender types mothers and non-gender-typed fathers, t (48)= 1.56, p=.14.

One unplanned comparison was conducted. Boys with two non-gender-typed parents were compared to boys with a non-gender-typed mother and a gender-typed father. An alpha value of .05 was set. It was found that boys with a non-gender-typed mother and a gender-typed father were significantly more gender schematic than boys with two non-gender-typed parents, t (34) = -2.19, p=.03.

Discussion

Gender Differences in Gender Schematicity

The first analysis examined potential differences in gender schematicity in boys and girls. The finding that boys were more gender schematic than girls was predicted and consistent with existing gender schema theory and social learning theory. Research suggests that very limited gender roles are socially acceptable for boys, and an awareness of these very rigid limitations therefore seems adaptive to being raised as a son (Pollack, 1998; Sadker & Sadker, 1994). Girls, in contrast, are free to cross gender barriers with less fear of punishment and rejection. In this way, girls can utilize other schemata for selection of activities and behaviours.

Age Difference and Gender Schematicity

Contrary to the hypothesis, no difference was found between gender schematicity levels between children in kindergarten and children in grade four. This unexpected finding supports the claim that gender flexibility and gender schematicity may be distinct dimensions of gender. While it has been shown that gender flexibility increases from

early to middle childhood (Weinraub et al., 1984), the same was not found for gender schematicity. Each of these aspects of gender may have different developmental pathways and may be related to different environmental variables.

Planned Comparisons

In each of the final four comparisons, boys with gender-typed fathers and non-gender-typed mothers were compared to children in the sample. This particular group of boys was selected in order to clarify the relationship between fathers and sons that have been associated with gender development. The first comparison involving parental gender type looked at whether boys growing up in homes with a gender-typed father and a non-gender-typed mother would be more gender schematic than girls growing up in similar homes. The analyses confirmed that boys in this situation were more gender schematic than girls with the same types of parents.

There are two ways to interpret this result. First, it might be said that boys are simply more gender schematic than girls and that the parents' gender types have little to nothing to do with it. Higher gender schematicity in boys may be a product of socialization by society in general, or may be a true sex difference. Second, the father/son relationship might be influential in this finding. That is to say, the father/son relationship may be distinct.

The next comparison helped clarify this relationship to a degree. In effect, boys and girls with same-sex, gender-typed parents were compared to each other. The comparison showed that the boys were still more gender schematic than the girls. It may be that boys are simply more gender schematic than girls despite the composition of parental gender types or it may be that the father/son relationship is truly distinct; That is, the relationship between a gender-typed father and his son contributes to higher child gender schematicity than the relationship between a gender-typed mother and her daughter. If so, this finding may support the distinctness of the father as a familial socialization agent to sons found in other research. However, one cannot ignore the fact that all comparisons to this point involved son/daughter comparisons, findings that could be interpreted from either a gender socialization or a biological perspective.

In order to clarify whether the father/son relationship was distinct from the mother/son relationship, a final planned analysis was completed. In the comparison, boys with gender-typed fathers and non-gender-typed mothers were compared to boys

with non-gender-typed fathers and gender-typed mothers. Interestingly, this was the only planned comparison looking at two groups of boys raised in different types of homes. The result of this comparison was that there was no significant difference between the gender schematicity levels in these two groups of boys. Thus, boys with at least one gender-typed parent, be it the boy's father or mother, do not demonstrated significantly different levels of gender schematicity. This finding cast doubt on the interpretation, suggested earlier, that the father/son relationship was distinct in impact on gender socialization. Perhaps the overall socialization pattern is more accurately considered to be a threshold effect, where a presence of either gender-typed parent within the home would foster a similar level of gender schematicity in the son. This finding, however, did little to clarify the support or refute an exclusively biological interpretation.

Post-Hoc Comparison

In order to potentially correct the ambiguity described above, one unplanned comparison was added to the study. In this analysis, the same group that had been focused on was compared to other boys in the study. That is, boys with a gender-typed father and a non-gender-typed mother were compared to boys with two non-gender-typed parents. The results were that boys with a gender-typed father and a non-gender-typed mother were more gender schematic than boys with two non-gender-typed parents. This finding confirmed suspicions that parental gender types are related to children's gender schematicity within boys, and that the threshold interpretation is feasible. These findings together lend support to the belief that both child gender and parental gender roles are important factors in children's gender development.

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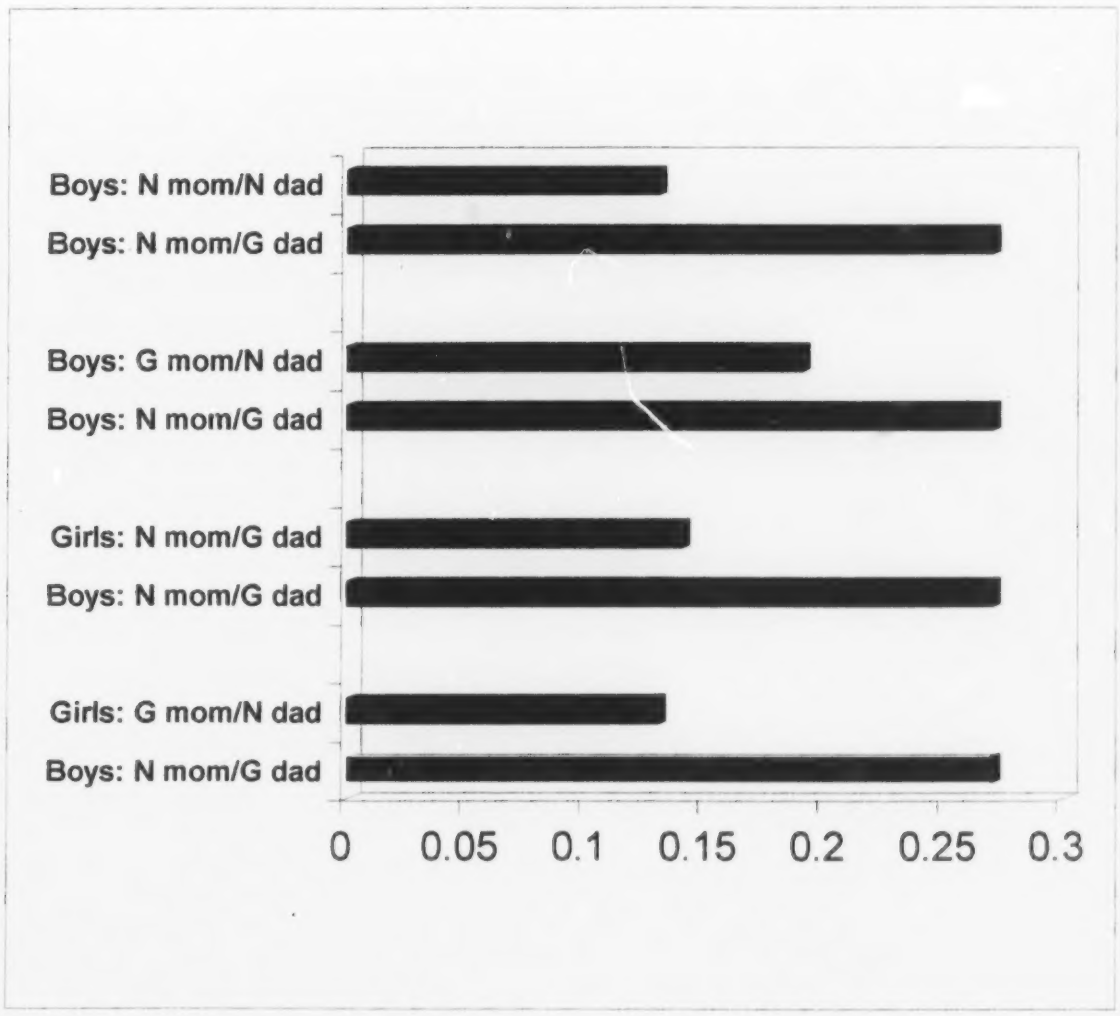
Table 1

Descriptive Statistics of Children's Facilitated Scores

By Parental Gender Type Classification

	Children's Facilitated Scores		
Parental Gender Type Grouping	*n*	*M*	*SD*
Boys: non-gender-typed mother/gender-typed father			
Kindergarten	9	.26	.12
Grade 4	13	.29	.20
Girls: non-gender-typed mother/gender-typed father			
Kindergarten	10	.10	.15
Grade 4	10	.19	.13
Boys: gender-typed mother/non-gender-typed father			
Kindergarten	14	.15	.21
Grade 4	14	.24	.20
Girls: gender-typed mother/non-gender-typed father			
Kindergarten	12	.05	.22
Grade 4	7	.27	.07
Boys: gender-typed mother/gender-typed father			
Kindergarten	14	.18	.22
Grade 4	10	.31	.21
Girls: gender-typed mother/gender-typed father			
Kindergarten	11	.11	.18
Grade four	16	.08	.23
Boys: non-gender-typed mother/non-gender-typed father			
Kindergarten	5	.15	.15
Grade four	9	.13	.25
Girls: non-gender-typed mother/non-gender-typed father			
Kindergarten	13	.16	.13
Grade four	11	.12	.18

Figure 1
Planned Comparisons of Children's Facilitated Scores by Child Sex and Parental Gender Typing Group



Notes:
1) All comparisons were significant at the .05 alpha level except the comparison between boys with gender-typed mothers and non-gender-typed fathers and boys with non-gender-typed mothers and gender-typed fathers
2) N= Non-gender-typed, G= Gender-typed